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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, THINH T

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,882

Applicant(s)

DREWES, JOEL A.

Examiner

Thinh T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-19 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/21/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED OFFICE ACTION**

### **Specification**

1. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

### **Claim Objection**

2. Claim 18 are objected to as being improper dependent claim lacking antecedent basis. Claim 18 depend on claim 15 and recite the limitation:-- “ A method as in claim 15, further comprising forming conductive layers in electrical contact with the free layer and the offset layer. “-- There is no mention of the formation of the offset layer in claim 15.

Correction or clarification is required.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 15, 18 , 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Gill (U.S. Patent Application Publication US 2002/0141120).

REGARDING CLAIM 15

Gill (fig 1,paragraph [008]) discloses: A method of forming a magnetic tunnel junction element comprising: forming a free ferromagnetic layer (fig 1 layer 110); forming a pinned ferromagnetic layer (fig 1 layer 120), forming a tunnel junction barrier layer between the free and pinned layers (fig 1 layer 115); forming another ferromagnetic layer (fig 1 layer 125) in flux communication with the pinned layer which reduces demagnetization coupling between the pinned ferromagnetic layer and the free ferromagnetic layer.

REGARDING CLAIM 18

Gill ( fig 7, paragraph [0049] ) discloses the formation of conductive layers ( fig 7 layer 712,714 ) in electrical contact with the free layer ( fig 7 layer 728 ) and the offset layer ( fig 7 layer 716).

REGARDING CLAIM 19

Gill disclose a method (fig 7,the abstract, paragraph [0049]) of forming a magnetic memory element comprising:

Forming a free ferromagnetic layer (fig 7 layer 728) ; forming a pinned ferromagnetic layer ( fig 7 layer 722 ) ; forming a tunnel junction barrier layer ( fig 7 layer 726 ) between the free and pinned layers; forming an antiferromagnetic layer ( fig 7 layer 720) for pinning the pinned layer; and forming another ferromagnetic layer ( fig 7 layer 716) on a side of said

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antiferromagnetic layer which is opposite a side forming said pinned layer, said another ferromagnetic layer receiving flux coupling between said free and pinned layers.

### **Claim Rejections - 35 USC § 103**

5. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gill (U.S. Patent Application Publication US 2002/0141120 A1) in view of further remark.

#### **REGARDING CLAIM 16,17**

Gill discloses all the inventions except going into detail about the magnetic material for the free layer, the pinned layer, the pinning layer. However these feature are considered obvious Since the use of IrMN, PtMn, CoFe, NiFe as magnetic material for the free layers, pinned layers, pinning layers are old and well known in the art.

A person skilled in the art at the time the invention was made would be able to come up with the use of magnetic material having IrMn, PtMn, CoFe, and NiFe for these layers without any special teachings.

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7. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

### **CONCLUSION**

9. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Gillies et al (US patent 6,438,026) disclose a magnetic field element having a biasing magnetic structure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

**Thinh T. Nguyen** TTN

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**David Nelms**  
Supervisory Patent Examiner  
Technology Center 2800